

## APPARATUS AND METHOD FOR PHASE SYNCHRONIZATION CONTROL IN RZ OPTICAL TRANSMITTER

### Abstract

An optical RZ transmitter comprises an optical signal source and a pair of  
5 electro-optical modulators in tandem, one arranged to receive a NRZ electrical data  
signal and the other a clock signal at the data rate of the data signal. The phase  
difference between the data signal and the clock signal is controlled by adding a first  
dither signal to a bias signal applied to the modulator receiving the data signal, and a  
second dither signal, having a different frequency, to the phase difference. The  
10 amplitude of variations in the power of the optical output signal corresponding to  
cross-modulation of the first and second dither signals is detected and the phase  
difference is controlled in response to the detected amplitude.